COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
PIEDMONT REGIONAL OFFICE
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Matthew J. Strickler
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April 8, 2021

Mr. Jerry Cifor
President
Green Ridge Recycling and Disposal LLC
12230 Deergrove Road
Midlothian, Virginia 23112

Subject: Green Ridge Recycling and Disposal Facility, LLC
Notice of Intent and Part A Application – Technical Review

Dear Mr. Cifor:

The Virginia Department of Environmental Quality (DEQ) Piedmont Regional Office (PRO) is in receipt of a Notice of Intent (NOI) and Part A Permit Application for the Green Ridge Recycling and Disposal Facility, LLC, dated January 17th and received on January 22, 2020. Additional information was received by the Department April 16, 2020 and October 28, 2020 regarding Disclosure Statements, January 08, 2021 regarding the Demonstration of Need, and February 16, 2021 regarding Public Water Supplies. The NOI and Part A Permit Application, and supplemental information, was prepared by Draper Aden Associates, LLC, on behalf of the Green Ridge Recycling and Disposal Facility, LLC.

The NOI and Part A Permit Application were reviewed for administrative completeness in accordance with § 9 VAC 20-81-450.A, B, and C, § 9 VAC 20-81-460, and § 9 VAC 20-81-120 of the Virginia Solid Waste Management Regulations (VSWMR, 9 VAC 20-81-10, *et seq*.) and found to be ***administratively complete*** in a Final Completeness Review letter dated December 11, 2020. Subsequently, this application has been reviewed for technical adequacy and regulatory compliance. Based on this technical review, the Part A Permit Application appears to be ***technically inadequate*** and the following items need to be addressed in a subsequent revision:

Part A Application Form, DEQ Form SW PTA

Attachment IX: Key Map, Near-Vicinity Map, and Regional Map
Attachment X: Proof of Ownership Documents
Attachment XVIII: Certification and Documentation of Adjacent Property Owner Notification
Attachment XXI: FEMA Flood Insurance Rate Map

Attachment XXII: Wetlands Demonstration and Agency Coordination

1.) Please note that the Part A Application Form must be signed by a Responsible Official of Green Ridge Recycling and Disposal Facility, LLC.

2.) The property boundary/facility boundary, and the waste management boundary, should be surveyed and depicted on the Near Vicinity Map (Drawing PTA Attachment IX Figure 2), as required by 9 VAC 20-81-460.C.2. The ***overall*** surveyed facility property boundary depicted on Drawing No. 1 of Attachment X (Proof of Ownership) should be transferred or also depicted on the Near Vicinity Map, as indicated above. The proposed waste management boundary (dashed green line on the Near Vicinity Map) should also be surveyed with metes and bounds, as required by 9 VAC 20-81-460.C.2. The limits of waste should be depicted with bearings and distances, at a minimum. All associated acreages should also be listed on the Near Vicinity Map (NVM).

3.) A total of sixteen parcels that comprise the proposed Green Ridge facility are depicted on the NVM and described in Attachment X. However, parcels 45-A-7, 38-A-7, 44-A-36, and 45-1-40 could not be located on the NVM. It is possible that parcels 45-A-7, 38-A-7, and 44-A-36 are mislabeled 44-A-7, 39-A-7, and 44-A-38, respectively, on the NVM. Parcel 45-1-40 may be an unidentified parcel containing the Jones House site. Please clarify.

4.) Attachment XVIII includes a list of the parcels and addresses whose owners or occupants were notified of the proposed landfill, in accordance with 9 VAC 20-81-460.I. However, the following twenty-two parcels appear to be adjacent to the proposed landfill and could not be located in Attachment XVIII:

38-A6-A	44-A-24	45-1-39	45-A-12-D
44-A-16	44-A-23	45-1-35	45-A-12-E
45-A-2	44-A-31	45-1-34	45-A-12-A
45-A-2-D	44-A-35-A	45-A-15-A	*Unidentified Parcel SE of Jones Site
45-A-11	44-A-38	45-A-15-B	
45-2-3-D	44-A-37	45-A-16	

Please verify that these parcels were notified as necessary, in accordance with 9 VAC 20-81-460.I.

5.) The Near Vicinity Map should depict the surveyed location of the two site survey benchmarks (if installed), as required by 9 VAC 20-81-130.G.

6.) It appears that the proposed waste management boundary depicted on the Near Vicinity Map encroaches slightly on delineated wetlands and the FEMA 1% chance annual floodplain along Muddy Creek. Please clarify or revise the proposed waste management boundary to avoid the wetlands and floodplain.

7.) The Department understands that the FEMA 1% chance annual floodplain is currently being revised for this area. Please coordinate with FEMA and include the updated FEMA maps in the Part A Permit Application.

8.) The Department of Conservation and Recreation has performed a simplified dam break analysis based upon the maximum storage capacity of Flippen Dam along Muddy Run. Their analysis (attached) indicates that the proposed waste management boundary encroaches into the dam break inundation zone. Please revise the waste management boundary or provide additional documentation that the waste management boundary will not encroach into the dam break inundation zone.

9.) The applicant has applied for and received a Preliminary Jurisdictional Determination from the U.S. Army Corps of Engineers (USACOE), dated August 22, 2019. Please note that the solid waste permit application cannot be approved until all required wetland permits are obtained from the USACOE and the Department.

10.) As indicated in Attachment X, please provide the Department final documentation of the merger into Green Ridge Recycling and Disposal Facility, LLC., including the updated property Exhibit (Drawing No. 1).

Attachment XI: Hydrogeologic and Geotechnical Report
Attachment XII: Location of Borings and Boring Logs
Attachment XIII: Laboratory and Field Data
Attachment XV: Geologic Maps, Orthogonal Cross-Sections, and Potentiometric Surface Maps
Attachment XXIII: Demonstration Regarding Proximity to a Fault or Siting within a Seismic Impact Zone

11.) The proposed base grades depicted in Attachment XV of the Part A Permit Application show the base grades constructed 10 to 25 feet into the bedrock in some areas (e.g., South of B-5, and near DAA-27sb). However, it appears that none of the borings performed for the Part A Permit Application were installed more than 10 feet into bedrock at the site. In accordance with 9 VAC 20-81-460.E.1.e., at least one deep boring should be installed into bedrock where the deepest base grades are proposed. The bedrock should be cored continuously for the first 20 feet below the proposed base grade. This will provide necessary information in accordance with 9 VAC 20-81-120.D.1 regarding the rate and direction of groundwater flow in the bedrock, ability to monitor groundwater in bedrock, the need for blasting or adjustment of base grades, potential hydraulic inter-connection with other regional groundwater wells, etc.

12.) Proposed base grades of the liner appear to be as much as five feet below the groundwater potentiometric surface at several locations (near DAA-39sb, and DAA-15pz). Please indicate (with supporting calculations) whether these conditions will necessitate a permanent or temporary construction de-watering system. Proposed permanent lowering of the groundwater potentiometric surface with pumping may require additional information and conditions to ensure that the rate and direction of groundwater flow can be determined, and any releases from the landfill can be characterized and defined, in accordance with 9 VAC 20-81-120.D.1.

13.) Form A of the Part A Permit Application indicates that the lowest base grade of the proposed landfill will be 270 ft AMSL. However, geologic cross-section B-B' and Table 1 of the Hydrologic and Geotechnical Report indicate base grades as low as 265.73 AMSL. The cross-sections also depict the disposal unit base grades extending beyond the limits of the proposed disposal unit boundary depicted on the Near Vicinity Map. Please provide clarification of the actual proposed limits of the disposal unit boundary in the Part A Permit Application.

14.) The proposed landfill is located within the Central Virginia Seismic Zone. 9 VAC 20-81-120.C.3.b.(1) restricts siting of a landfill within a seismic impact zone unless the owner or operator demonstrates that all containment structures are designed to resist the maximum horizontal acceleration in lithified earth material for the site. Attachment XXIII indicates that the peak ground acceleration may be as much as 20% gravity for the landfill site. However, according to the USGS Unified Hazard Tool, the peak ground acceleration to be used for design purposes at this site location is 22.5% gravity, or 0.225g. Please note that the USGS updated the U.S. Seismic Hazard Long-Term Model in 2018. The applicant should use the updated data as appropriate in the Part A Permit Application.

15.) The proposed base grades depicted in Attachment XV of the Part A Permit Application are shown constructed into the bedrock in some areas, and atop as much as 35 feet of silts and sands in other areas of the site. Attachment XXIII indicates that the proposed landfill will incorporate a design seismic coefficient of 0.10g, or one-half the peak ground acceleration. However, it is not appropriate to set the seismic coefficient as one-half the peak bedrock acceleration at this stage, since the seismic coefficient is related to the peak acceleration at the ground surface, which may be amplified by the overlying soils and be different than the peak acceleration in bedrock.

16.) An assessment of the Liquefaction Potential should be performed based upon the geotechnical and hydrogeological data gathered from the site investigations (in particular in those areas with more extensive silts and sands, e.g., DAA-4sb and DAA-36pz). In addition, a preliminary seismic stability analysis should be performed for both conditions that may be present (i.e., landfill constructed into bedrock, and landfill constructed atop 35 feet or more of silts and sands), in order to demonstrate that the landfill can be designed to resist the maximum horizontal acceleration in bedrock, as required by 9 VAC 20-81-120.C.3.b.(2). Guidance for performing these assessments can be found in

document ***EPA/600/R-95/051, RCRA Subtitle D (258) Seismic Design Guidance for Municipal Solid Waste Landfill Facilities.***

Attachment XVI: VDOT Adequacy Report and Approval Letter
Attachment XVII: Landfill Impact Statement

17.) Section 4.6 and Appendix LIS-2F of the Landfill Impact Statement (LIS) address Historic Resources. The applicant has prepared a Phase I Cultural Resources Investigation, dated February 2020. The Virginia Department of Historic Resources (DHR) has reviewed the Phase I report in a letter dated April 30, 2020. Draper Aden Associates indicated in a response to the DHR, dated November 11, 2020 that Browning & Associates is continuing with its onsite investigations on areas of interest within the Green Ridge Property and information on those activities will be forthcoming. DHR has provided the applicant additional review comments and recommendations in correspondence dated March 19, 2021. Please continue to provide the Department with any additional reports and evaluations as the Part A Permit Application is reviewed. Resolution of historic resources issues and concerns with DHR will be required prior to any permit approval.

18.) The Traffic Impact analysis included in Attachment XVI includes a VDOT review letter dated July 10, 2019, which recommends both right and left turn lanes be installed on Route 60. It is not clear from the LIS if the applicant intends to install both turn lanes in accordance with the VDOT recommendations. Please clarify.

19.) The current alignment of Pinegrove Road and Miller Lane cross over the proposed disposal unit boundary. The NVM depicts an overhead utility line along the road alignment. Please provide any easement agreements that may exist with VDOT and electric, storm or other utilities, and describe how the road and utilities will be removed or relocated outside of the waste management boundary, in order to demonstrate that these roads and utilities will not be limiting site characteristics in accordance with 9 VAC 20-81-120.F.1.d.

20.) The Waste Management Boundary, and the Disposal Unit Boundary, appear to be within 500 feet of portions of Pinegrove Road and Miller Lane, after proposed realignment. Please provide a description and schematics of how the facility will be screened and noise reduced by natural objects, plantings, fences, or other means so as to minimize the visibility from the main-traveled way of the highway or city street, or otherwise removed from sight, in accordance with 9 VAC 20-81-120.C.1.e.(1), and 9 VAC 20-81-130.E.

21.) The permit application documents indicate that the scale house and site office are located southeast of Miller Lane, and the disposal unit itself will be located on the other side of Miller Lane. Portions of Miller Lane and Pinegrove Road will remain within the facility boundary after proposed realignment. Please provide a description and schematics of how the facility will limit all access by gates, and be surrounded on all sides by natural barriers, fencing, or an equivalent means of controlling vehicular and public access and preventing illegal disposal, in accordance with 9 VAC 20-81-130.B.

22.) Section 4.3 of Attachment XVII (LIS) discusses Public Water Supplies, Section 4.8 of the LIS discusses the potential impact of the proposed landfill on Water Quality (both surface water and groundwater resources) within five miles of the landfill site, and Section 4.8.3 discusses Mitigating Potential Impacts.

The additional information submitted February 16, 2021 by Draper Aden Associates indicates that there is a newly installed non-transient, non-community (NTNC) public water system within 2.7 miles of the proposed landfill. Although not denoted as public water systems within the LIS or VDH records, the following churches may have groundwater supply wells that may be considered transient non-community public waterworks: Oak Grove Baptist Church (on Route 45), Shiloh New Covenant Church (on Route 60), and Rising Zion Baptist Church (on Route 60).

Please update the appropriate sections of the LIS as necessary to include an analysis of the hydrogeological setting of the new NTNC well and the three Church wells noted above, the potential for a hydrogeological connection between these wells and the proposed landfill, and any potential impacts.

The Department's review of your Part A Permit Application will continue upon receipt of the additional information and necessary revisions outlined above.

Please note the letter should not be considered a legal opinion or a case decision as defined by the Administrative Process Act, Code of Virginia § 2.2-4000 *et seq*. If you have any questions about this matter, please contact me at (804) 527-5049, or by e-mail at dean.starook@deq.virginia.gov.

Sincerely,

Dean E. Starook

Dean E. Starook
Groundwater Remediation Specialist

Attachment: DCR Simplified Dam Break Analysis

cc: Michael D. Lawless, P.G., C.P.G., Draper Aden Associates
Lynn P. Klappich, Draper Aden Associates
Kathryn Perszyk, DEQ-CO
Shawn Weimer, DEQ-PRO

Matthew J. Strickler
Secretary of Natural Resources

Clyde E. Cristman
Director

COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

Rochelle Altholz
Deputy Director of Administration and Finance

Russell W. Baxter
Deputy Director of Dam Safety & Floodplain Management and Soil & Water Conservation

Thomas L. Smith
Deputy Director of Operations

RE: DEQ number & Project Name - Unknown

Project review by Virginia Department of Conservation and Recreation, Division of Dam Safety and Floodplain Management.

Virginia Dam Safety Program: Check all that apply to this project

[X] Size, agricultural, or otherwise exempted dam

[ ] State regulated dam subject to the Virginia Dam Safety Program requirements

[ ] Status of permit

[ ] A construction permit is required through this office
[ ] A construction permit has expired and must be reissued
[ ] An alterations permit is required through this office
[ ] The alterations permit has expired and must be reissued
[ ] The project is operating under a current construction permit
[ ] The project is operating under a current alterations permit
[ ] No permit required through DCR/Dam Safety

[ ] Status of certificate coverage

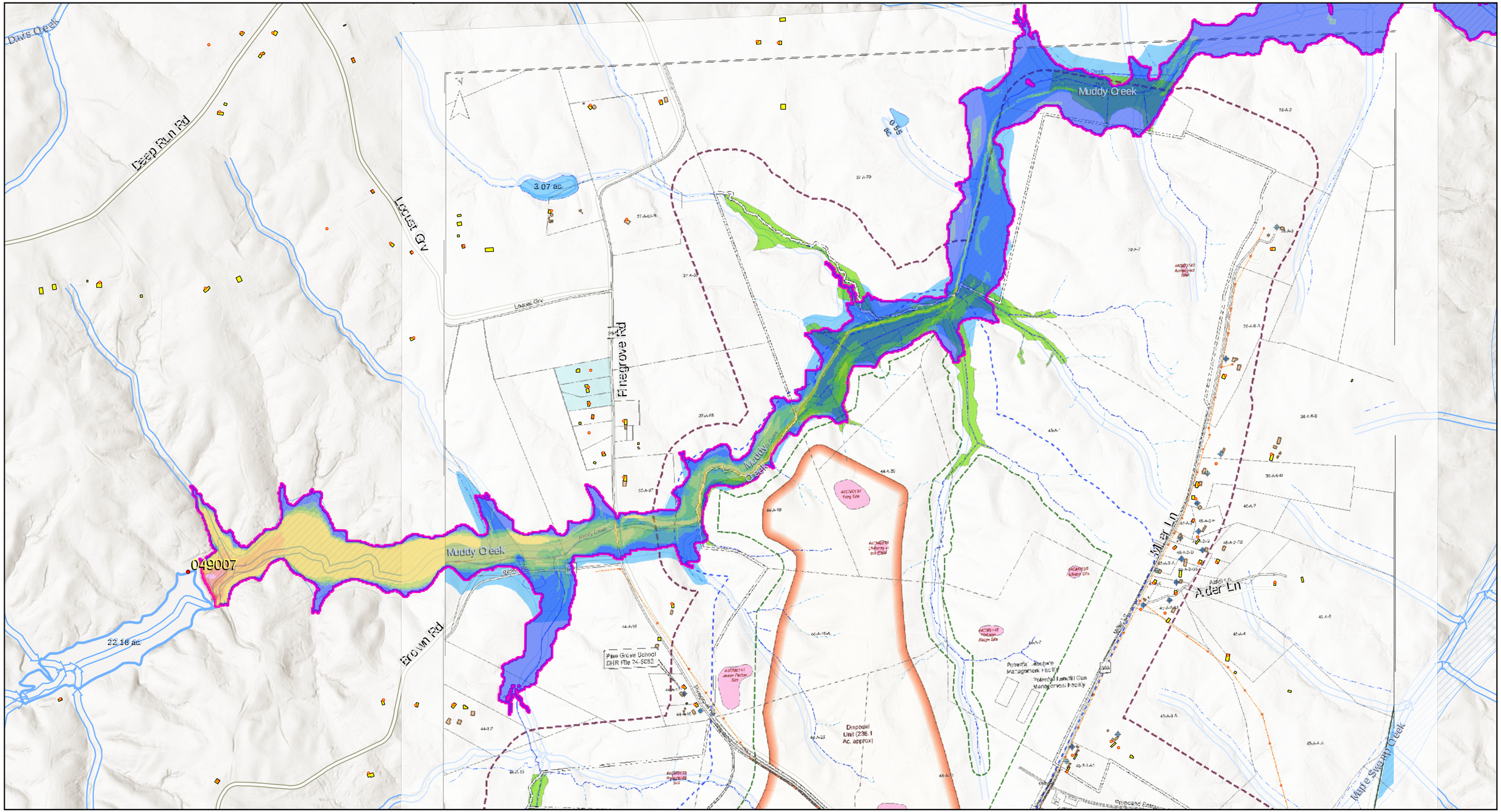
[ ] Regular operation and maintenance certificate
[ ] Conditional operation and maintenance certificate
[ ] General permit (for qualifying Low Hazard potential classification only)
[ ] None (requires certificate coverage)

Flippin Dam (049007) is along Muddy Creek just west of the proposed project site and has an estimated maximum storage capacity of 366 acre-feet and a height of 22 feet from the natural streambed. The dam is used for agricultural purposes and since its height is less than 25 feet it has an agricultural exemption from the Virginia Impoundment Structure Regulations, and, therefore, not required submit a formal dam break inundation study. However, DCR has performed a simplified dam break analysis based on the maximum capacity of the dam and it appears that the proposed waste management boundary does encroach in to the dam break inundation zone. Additionally, the 500' waste management boundary is well within the dam break inundation zone throughout much of the northern end of the project site. See attached overlay of the proposed project site drawing with the DCR provided dam break inundation zone. There are no other known regulated impoundment structures within the proposed project vicinity.

For questions, please contact the Virginia Department of Conservation and Recreation, Division of Dam Safety and Floodplain Management at (804) 371-6095 or at dam@dcr.virginia.gov.

Justin Deel, Regional Engineer		2/4/2021
Printed Name and Title	Signature	Date

049007 - Hippen Dam- Landfill Site



0 0.2 0.4 0.8 Miles

N

Any determination of topography or contours, or any depiction of physical improvements, property lines or boundaries is for general information only and shall not be used for the design, modification, or construction of improvements to real property or for flood plain determination.

DCR